



## AF Webinar

### Understanding Profit, Cash Flow, and Internal Rates of Return

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# Topics

- ◆ **Cash Flow and the Defense Industry**
- ◆ **Valuing Cash Flow**
- ◆ **Understanding Financial Terms**
- ◆ **Cash Flow, Profit and Financial Returns on Government Contracts**





# Cash Flow

- ◆ **Contractors have always understood the significance of cash flow on Government contracts and have acted accordingly.**
- ◆ **We in the Government have not.**
- ◆ **This has been a recipe for some questionable policy and bad business deals.**





# Contract Cash Flow

- ◆ **The defense industry understands the importance of cash flow on contracts.**
- ◆ **The following changes all involved improved cash flow for industry.**
  - » **1970's Facilities Capital Cost of Money**
  - » **1980's Flexible Progress Pay / Milestone Billings**
    - **Both are no longer in place**
  - » **1990's Performance Based Payments**
  - » **2000's Paid Cost Rule Eliminated / Provisional Award**





# Performance Based Payments

- ◆ **Performance based payments (PBPs) are a form of contract financing.**
- ◆ **All contract financing is intended to assist contractors in paying the cost they incur prior to delivery.**
- ◆ **PBPs were never intended to result in “advance payments” to contractors, but they clearly have.**





# Performance Based Payments & Company Financial Statements

- ◆ **You'll find an interesting item, worth billions of dollars, contained in "Current Liabilities" on Contractor financial statements:**

- NG & Raytheon: **"Advance payments and billings in excess of cost incurred"**
- LM: **"Customer advances and amounts in excess of costs incurred"**

- ◆ **Explanation included in the notes to Financial Statements:**

"We receive advances, **performance-based payments**, and progress payments from customers that may exceed costs incurred on certain contracts"

- ◆ **Companies do not identify how much of the "advance payment" is attributable to performance-based payments.**

**The combined value of "advances in excess of cost" for these three contractors alone, was over \$1.0B as of Dec 31, 2013.**

» Some level of advance payment on direct foreign sales (not FMS) can occur but total foreign sales (Not FMS) accounted for less than 12% of total revenue for these companies in 2013



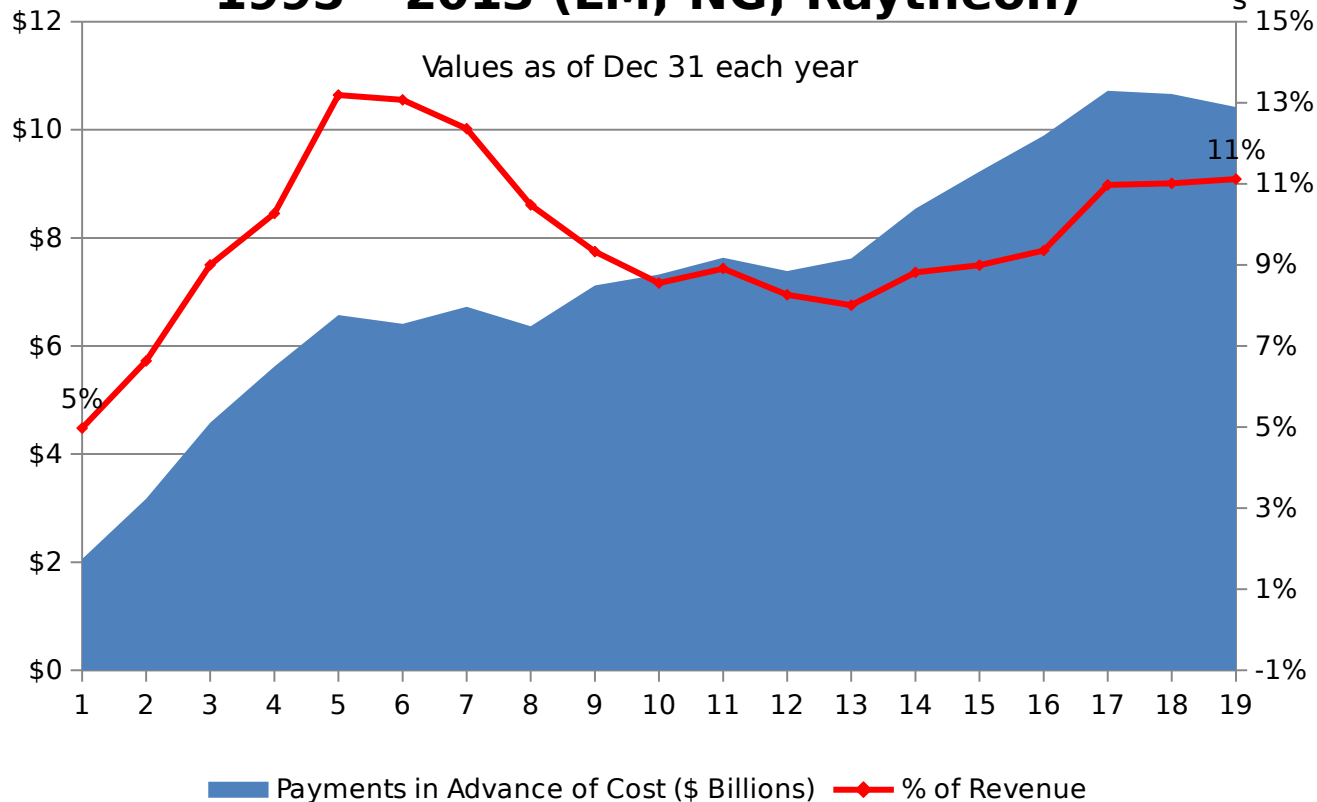


# “Customer Advances - Advance Payments”

These are not profits earned on delivery, these are essentially “advance payments”

Note:  
Performance Based Payments began in 1996

## Advances in Excess of Cost Incurred (\$ Billions) 1995 - 2013 (LM, NG, Raytheon)





# Cash is King

- ◆ In the private sector, cash is king.

» ***"The real issue here is cash is king. You've got to follow the cash. There's a great saying that***

***in my opinion, cash is a***



***Scott McNealy,  
Chairman and CEO  
of Sun Microsystems***

***Oct 2002***





# Defense Industry Cash Flow



Boeing:

**"Further strengthened operating cash flow to \$7.5 billion"**



Lockheed Martin:

**"our business continues to generate strong cash flows"**

**"Cash from operations of \$1.6 billion, after pension contributions of \$3.6 billion"**



Northrop Grumman:

**"unwavering focus on performance, portfolio alignment and effective cash generation and deployment."**

**"free cash flow of \$2.5 billion before discretionary pension contributions"**



Raytheon:

**"We had strong operating cash flow from continuing operations of \$2 billion in 2012."**





# Question 1

**Which of the following statements is true about advance payments?**

- A. The Government encourages advance payments in order to obligate funds more quickly.**
- B. They are a win-win for Government and contractor because they don't cost anything and improving cash flow makes the contractor happy.**
- C. They are the least preferred form of financing by the Government.**





# Cash Flow and the Time Value of Money





# Valuing Cash Flow

- ◆ **Since cash flow is so important to contractors we should understand why.**
- ◆ **Most contracting people understand the basic concept of cash flow and time value of money.**
  - » **“A dollar today is worth more than a dollar a year from now”**
- ◆ **Not many know that the financial value of cash flow can be measured.**





# Personal Cash Flow Bank # 1 Example



**Offer: “Deposit \$12,000 today, get \$13,200 in 12 months”**

**Bank #1 would advertise an APY (Annual Percentage Yield) or Effective Annual Rate of 10%**





# Personal Cash Flow Bank # 2 Example



- ◆ Offer: “Deposit \$1,000 per month for the next 12 months and get \$13,200 at the end of month 12”

**Question 2 - Is this a better deal than Bank 1?**

- ◆ A. Yes.
- ◆ B. No.
- ◆ C. It is the same deal.





# Personal Cash Flow

## Bank # 3 Example



- ♦ **Offer: “Deposit \$1,000 per month for the next 12 months, withdraw \$800 each month starting the 2<sup>nd</sup> month, at the end of month 12 withdraw all remaining cash deposits plus \$1,200 in interest.”**

**Question 3: Why is everyone at Bank 3?**

- A. They are offering a free calculator when you open a new checking account.**
- B. They are offering a better deal than Bank 1, and Bank 2 was closed.**
- C. They are offering a better deal than Bank 1 and Bank 2.**





# Bank Comparison

	Bank # 1			Bank # 2			Bank # 3		
	Deposits	Withdrawals	Bank Balance	Deposits	Withdrawals	Bank Balance	Deposits	Withdrawals	Bank Balance
Mar 2014	\$12,000		\$12,000	\$1,000		\$1,000	\$1,000		\$1,000
Apr 2014			\$12,000	\$1,000		\$2,000	\$1,000	\$800	\$1,200
May 2014			\$12,000	\$1,000		\$3,000	\$1,000	\$800	\$1,400
Jun 2014			\$12,000	\$1,000		\$4,000	\$1,000	\$800	\$1,600
July 2014			\$12,000	\$1,000		\$5,000	\$1,000	\$800	\$1,800
Aug 2014			\$12,000	\$1,000		\$6,000	\$1,000	\$800	\$2,000
Sep 2014			\$12,000	\$1,000		\$7,000	\$1,000	\$800	\$2,200
Oct 2014			\$12,000	\$1,000		\$8,000	\$1,000	\$800	\$2,400
Nov 2014			\$12,000	\$1,000		\$9,000	\$1,000	\$800	\$2,600
Dec 2014			\$12,000	\$1,000		\$10,000	\$1,000	\$800	\$2,800





# Bank Comparison

## Monthly Personal Cash Flow

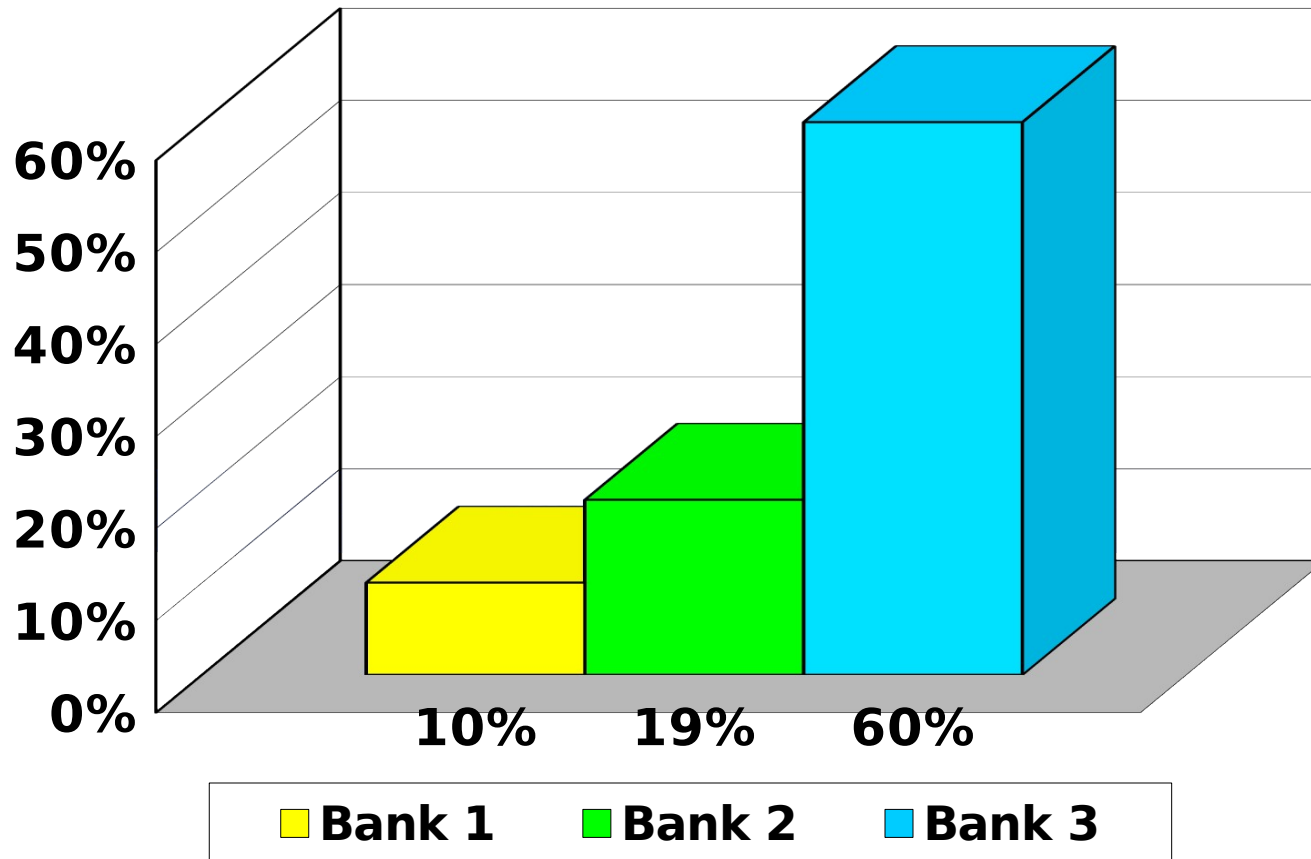
	Bank # 1			Bank # 2			Bank # 3		
	Deposits	Withdrawals	My Monthly Cash Flow	Deposits	Withdrawals	My Monthly Cash Flow	Deposits	Withdrawals	My Monthly Cash Flow
Mar 2014	\$12,000		(\$12,000)	\$1,000		(\$1,000)	\$1,000		(\$1,000)
Apr 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
May 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Jun 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
July 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Aug 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Sep 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Oct 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Nov 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Dec 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Jan 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)





# Financial Returns

## APY or Internal Rate of Return (IRR)





# Bank Example Summary

- ◆ **All three banks generated the same interest dollars for the investor.**
  - » Would anyone consider the offers from the three banks to be remotely close to one another?
- ◆ **Cash flow significantly changed how much our money was invested or “tied up” to generate the interest dollars.**
- ◆ **Keep this in mind when we consider what happens on a Government contract later on**





# ◆ Financial Terms Explained





# Time Value of Money

- ◆ **Key financial terms in valuing cash flow:**
  - » **Future Value (FV)**
  - » **Present Value (PV)**
  - » **Net Present Value (NPV)**
  - » **Discounted Cash Flow (DCF)**
  - » **Internal Rate of Return (IRR)**
  
- ◆ **All companies evaluate cash flows based on these concepts**





# Time Value of Money - Basics

- ♦ **"A dollar received today is worth more than a dollar received a year from now"**
- ♦ **Why? Because you could safely invest it and have more than one dollar a year from now.**
- ♦ **Lets pretend a 1 year U.S. Treasury Bill paid 10% interest. In that case, \$1.00 today is the same as a \$1.10 one year from now ( $\$1.00 + 10\% = \$1.10$ )**
- ♦ **Therefore, \$1.00 today has a Future Value (FV) of \$1.10 a year from now.**  

YR 1      YR 2

  - » **\$1.00 today would have a FV of \$1.21 two years from now ( $\$1.00 \times 1.10 \times 1.10 = \$1.21$ )**





# Present Value

- ◆ **Present Value (PV) is the inverse of Future Value.**
  - » **If I can earn 10% per year, then 10% is also the “discount rate” that I will apply to future cash flows to determine their value to me today (PV)**
    - **The further in the future a cash flow occurs, the more I need to “discount” it to determine its PV.**
      - ◆ **At a 10% discount rate, the one year discount factor is 1.10, the two year discount factor is 1.21 ( $1.10 \times 1.10$ ) or  $1.10^2$**
    - **\$150 two years from now is worth \$123.97 today assuming a 10% discount rate**
      - ◆ **( $\$150 \div 1.21 = \$123.97$ )**





# Future Value

**Question 4: What is the Future Value of \$5,000 if you can invest it today and earn a rate of 5% in one year?**

**A. \$5,750**

**B. \$5,250**

**C. \$5,275**

**D. I forgot to bring my free calculator from Bank 3 to work today.**





# Discounted Cash Flow and Net Present Value

- ◆ **A Discounted Cash Flow analysis is simply the process of discounting a series of future cash flows to determine their Present Value.**
  - » Each individual cash flow is discounted based on a discount rate and when the cash flow will occur.
- ◆ **The Net Present Value (NPV) is simply the sum of those individual Present Values.**
- ◆ **NPV is often used as a Pass/Fail measure.**





# NPV Example

A \$1000 Investment today will give us \$1,100 over the next three years as shown below. We can safely make 5% per year on our money. Does this investment provide at least a 5% annual return?

Date	Cash Flow	Discount Factor	Present Value Cash Flow ÷ Discount Factor	Explanation
3/19/2014	\$1,000 <sup>-</sup>	1.0	-\$1,000.00	No discount needed for today's dollars
3/19/2015	\$500	1.05	\$476.19	At 5%, annual discount factor is 1.05
3/19/2016	\$500	1.1025	\$453.51	Year 2 = 1.05 x 1.05 (or 1.05 <sup>2</sup> )
3/19/2017	\$100	1.157625	\$86.38	Year 3 = 1.05 x 1.05 x 1.05 (or 1.05 <sup>3</sup> )
			<b>\$16.08</b>	<b>Net Present Value (NPV)</b>

Since we discounted the cash flows by 5% per year, and the NPV was still positive (greater than zero), the return must be greater than 5% per year.





# Internal Rate of Return (IRR)

- ◆ **NPV tells us if a series of cash flows produces a return that is greater or less than our discount rate but it doesn't tell us what the return is.**
- ◆ **IRR uses discounting and NPV but in a different way.**
- ◆ **Instead of discounting cash flows by a predetermined discount rate, IRR “finds” the discount rate that will cause the NPV of the cash flows to be equal to zero.**
  - » **This discount rate (IRR) is the annual return generated by the cash flows**





# IRR Example

Without a computer, finding the IRR solution would be time consuming (trial and error). Fortunately Excel contains an XIRR function that will find the IRR for a set of cash flows occurring on specific dates.

From our previous NPV example we know that the cash flows produced an annual return greater than 5%. XIRR tells us the return is 6.04%

Date	Cash Flow	
3/19/2014	-\$1,000	
3/19/2015	\$500	
3/19/2016	\$500	
3/19/2017	\$100	
		Using Excel XIRR Function, IRR = 6.04%





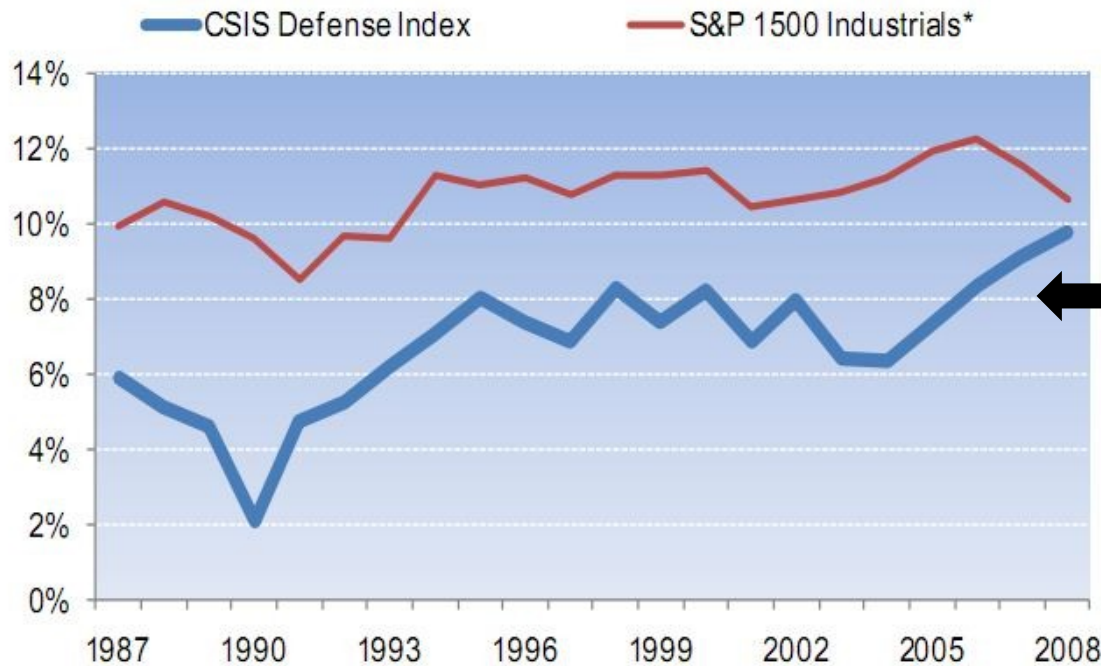
# **Cash Flow, Profit and Financial Returns on Government Contracts**





# Financial Returns Comparison Often Used by Industry

Figure 2: CSIS Defense Index EBIT Margin<sup>4</sup>



Defense Industry  
"margins" lower  
than S&P 1500  
peers

\*Excluding Defense

Source: Bloomberg, CSIS analysis

"Wall Street and the Pentagon: Analyzing Defense Finance"  
(01/12/10)





# Financial Returns

## Defense Industry Perspective

- ♦ **Defense industry often cites studies that indicate *margins* are considerably lower than their peers in the S&P 500 or S&P 1500.**
  - » (e.g. Operating Margins, Return on Sales)
- ♦ ***Margins* lower but they ignore Cash Flow**
- ♦ **Is that wise when Cash is King?**
  - » In the earlier Bank examples, each scenario would yield the exact same profit rate or "*Margin*"
  - » Ignoring cash flow would make you think each deal was financially equal (when they are not)





# Bank Contract Comparison

## Personal Contract Cash Flow

	<del>Bank # 1</del> Contract # 1			<del>Bank # 2</del> Contract # 2			<del>Bank # 3</del> Contract # 3		
	Deposits Contract t Cost	Withdrawals Government Payments	My-Monthly Contractor Cash Flow	Deposits Contract Cost	Withdrawals Government Payments	My-Monthly Contractor Cash Flow	Deposits Contract Cost	Withdrawals Government Payments	My Monthly Contractor Cash Flow
Mar 2014	\$12,000		(\$12,000)	\$1,000		(\$1,000)	\$1,000		(\$1,000)
Apr 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
May 2014									(\$200)
Jun 2014									(\$200)
July 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Aug 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Sep 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Oct 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Nov 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)
Dec 2014				\$1,000		(\$1,000)	\$1,000	\$800	(\$200)

Same Profit Margin (or Return on Sales) for all three contracts  
but real returns (IRR) are radically different.

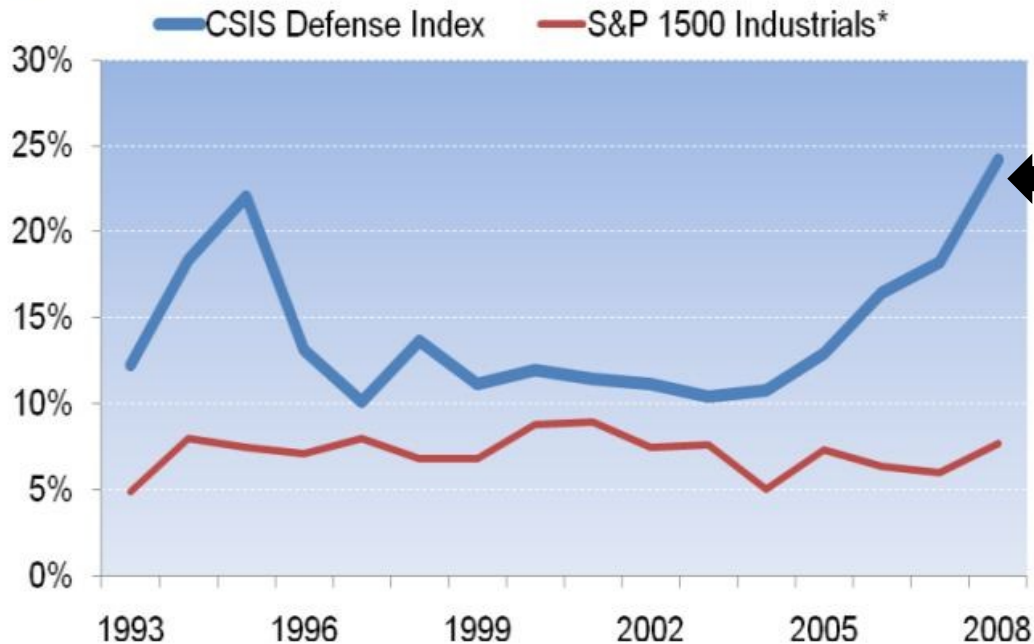




# Financial Returns

## Impact of Cash Flow

Figure 4: Cash Flow Return on Investment (CFROI)



Industry returns much better than S&P 1500 peers when cash flow is considered

\*Excluding Defense

Source: Bloomberg, CSIS analysis "Wall Street and the Pentagon: Analyzing Defense Finance" (01/12/10)

CFROI is a proprietary formula developed by CFSB Holt.





# Profit

- ◆ **So what is a fair profit for the contractor?**
- ◆ **We need to understand why contractors are in business.**





# Understanding Contractors

- ◆ **Corporations, including defense contractors, are *in business* to create value for their shareholders.**
- ◆ **In order to make money and create value, financial returns must exceed the cost of raising money**
- ◆ **For corporations, the cost of raising money is called the Cost of Capital\* (CoC) and is based on the two ways they raise money:**
  - » **Debt (borrowing) and Equity (selling stock)**
    - **Investor expectations are reflected in the cost of Equity in the CoC**





# Cost of Capital is “Hurdle Rate”

- ♦ **The CoC is an after-tax, annual percentage rate and becomes the “hurdle rate” or annual return that must be achieved by a corporation.**
  - » **The median CoC for Defense & Aerospace Sector firms is 7.66%\***
- ♦ **Do not confuse an after-tax profit rate earned on a contract with the CoC or hurdle rate.**
  - » **Similarly, do not confuse Operating Margin with CoC**
- ♦ **The proper comparison to the CoC is the IRR generated by contract cash flows.**





# Bank 3 Revisited: FFP Contract Cash Flow

## 12 Month FFP Contract

Cost \$12,000  
 Profit 1,200 10%  
 Price \$13,200

80% Progress  
 Payments

	A	B	C	D	E
1	FFP Contract				
2		Contract Cost	Progress Payments	Payment at Delivery	Contractor Monthly Cash Flow
3	Mar 1 2014	\$1,000			(\$1,000)
4	Apr 1 2014	\$1,000	\$800		(\$200)
5	May 1 2014	\$1,000	\$800		(\$200)
6	Jun 1 2014	\$1,000	\$800		(\$200)
7	July 1 2014	\$1,000	\$800		(\$200)
8	Aug 1 2014	\$1,000	\$800		(\$200)
9	Sep 1 2014	\$1,000	\$800		(\$200)
10	Oct 1 2014	\$1,000	\$800		(\$200)
11	Nov 1 2014	\$1,000	\$800		(\$200)
12	Dec 1 2014	\$1,000	\$800		(\$200)





# Contract Financial Returns

- ◆ **The previous example is a simple view of contract cash flows.**
- ◆ **A more accurate analysis should consider:**
  - » **Non-Cash Costs (e.g. Depreciation & FCCOM)**
  - » **Subcontract Participation**
    - **Progress payments reimburse 100% of subcontract financing**
    - **Increases effective progress payment rate for prime contractor**
  - » **Non Contract Cash Flows:**
    - **Unallowable Cost (e.g. Interest)**
    - **Federal Corporate Income Taxes**
    - **Capital Expenditures**





# DoD Profit Rates & Financial Returns

- ◆ **DoD profit rates provide more than adequate financial returns**

- » **The returns below include consideration of all items addressed on previous slide (unallowables, taxes, capex, etc)**

- **Fixed Price Contract, 50% subcontract cost, 80% Progress Payments, and 12.0 % Profit**

Contract Length	12 Months	24 Months	36 Months	48 Months
(One Delivery at contract end)				

After-Tax Return (IRR)	44.3%	24.1%	16.6%	12.7%
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Note: all returns exceed median Defense & Aerospace Sector CoC of 7.66%





# Cost of Capital

<b>Top 10 U.S. Defense Contractors 2013</b>	<b>CoC*</b>
<b>Lockheed Martin Corporation (NYSE:LMT)</b>	<b>7.41%</b>
<b>The Boeing Company (NYSE:BA)</b>	<b>7.47%</b>
<b>Raytheon Co. (NYSE:RTN)</b>	<b>7.35%</b>
<b>General Dynamics Corp. (NYSE:GD)</b>	<b>7.30%</b>
<b>Northrop Grumman Corporation (NYSE:NOC)</b>	<b>7.22%</b>
<b>United Technologies Corp. (NYSE:UTX)</b>	<b>7.32%</b>
<b>L-3 Communications Holdings Inc. (NYSE:LLL)</b>	<b>7.07%</b>
<b>Science Applications International Corporation (NYSE:SAIC)</b>	<b>6.86%</b>
<b>Huntington Ingalls Industries, Inc. (NYSE:HII)</b>	<b>7.02%</b>
<b>Honeywell International Inc. (NYSE:HON)</b>	<b>7.46%</b>
* Source: Aswath Damodaran, Professor of Finance, New York University, Jan 2014	





# DoD Fee Rates & Financial Returns

- ◆ **DoD fee rates on cost type contracts provide exceptional returns due to exceptional cash flow:**
  - » **100% of cost incurred plus percentage fee is paid every two weeks**
  - » **The returns below include consideration of all items addressed on earlier slide (unallowables, taxes, capex, etc)**

Contract Length	12 Months	24 Months	36 Months	48 Months
➤ <b>Cost Contract @ 8.0 % Fixed Fee or Target Fee</b>				
After-Tax Return (IRR)	48.0%	48.0%	48.0%	48.0%

- ◆ **Note that contract length is basically irrelevant for cost contract due to 100% cost reimbursement**





# Question 5

**You are in negotiations and the contractor declares the WGL does not adequately compensate them because your 7% fee position is only 4.55% after taxes, which is well below their cost of capital of 8% and they will lose money! How do you respond to the contractor?**

- A. That may be true, but it is not my concern.**
- B. I do not believe this would put you in a loss position. Let's look at the IRR for this contract based on my position of 7% to see what kind of a deal this is for your company. This will consider not just your profit margin, but the cash flow that you will be receiving as well.**
- C. That is a good point. I will revise my offer.**





# Summary

- ◆ **We need to become more savvy about the financial impact of contract cash flow.**
- ◆ **When contract cash flow is properly considered, our weighted guidelines profit and fee objectives are very fair and reasonable.**
- ◆ **Through understanding cash flow, we are better prepared to defend the WGL in negotiations.**

